

some results indicate a much higher proportion; (7) That experimental evidence shows that the ingestion of tuberculous cows' milk is followed by infection through the alimentary canal in the great majority of mammals on which the experiment has been made. Delépine concludes that it appears reasonable to say that, although there is not complete agreement in the results obtained by various observers as to the exact amount of human tuberculosis attributable to the consumption of tuberculous cows' milk, there is *clear and cumulative evidence that cows' milk plays a very important part in the production of infantile tuberculosis in England and Scotland.*

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**The Action of Anti-pneumococci Serum.**—C. G. BULL (*Proc. Soc. Exper. Biol. and Med.*, 1915, xii, 149) studied the cause of the disappearance of pneumococci from the blood, following an intravenous injection of a small amount of immune serum. He found that the immune serum actively agglutinated the pneumococci in dilutions of 1 to 500, when observed under the microscope, whereas macroscopically the agglutination titre is 1 to 80. Therefore, it was surmised that the disappearance of the bacteria from the circulating blood, following the injection of immune serum, might be due to clumping *in vivo*. Next, fragments of the organs—lungs, spleen, liver, kidney, brain, etc., were crushed and examined and clumps of pneumococci were found in all. The fate of the clumps was then investigated. By killing the rabbits at various times, after the administration of the serum, it was observed that the polymorphonuclear leukocytes englobed and digested them. The fixed cells play a small part also. Sectioned and crushed tissues gave the same results. Pneumococci from 150 c.c. of bouillon are thus destroyed within two to three hours. The smallest amount of serum that will influence the infection causes the clumping *in vivo*.

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**Chronic Lead Poisoning: Breeding Experiments.**—C. V. WELLER (*Proc. Soc. Exper. Biol. and Med.*, 1915, xii, 157) notes that there have been frequent clinical observations of the apparent deleterious effect upon the germ plasm exerted by chronic poisoning. A majority of these cases have been found in female lead workers and in these it might be supposed that abortions, stillbirths, and early deaths of infants were due as much to the toxic effect of lead during extra-uterine development as to an actual injury to the germ plasm. In the smaller number of instances in which the male parent alone was poisoned, the resulting sterility without impotency, the stillbirths and the early deaths of offspring are difficult to explain unless they are due to blastophthoria. The work of Stockard and of Cole and Davis has shown that alcohol has a similar effect. In a recent report which appeared as the present series of experiments was being concluded Cole and Bachhuber have demonstrated that the offspring of male rabbits poisoned by lead as well as of male fowls similarly poisoned are of distinctly lower vitality than the offspring of normal males. In attempting to determine experimentally whether blastophthoria occurs in chronic lead poisoning, guinea-pigs were given repeated weighed doses of commercial white lead in capsules by mouth. These guinea-pigs were mated, lead females with normal males and lead males with normal females. In order to check the results as efficiently as possible control matings were

made of normal males with normal females under the same feeding and housing conditions as the lead poisoned pigs, and for the same reason the normal females were bred alternately to lead males and to normal males. The dosage of lead was controlled by frequent weighings in order that the general nutrition should not be seriously impaired. A total of 93 matings yielded 170 offspring. Of these, 32 matings of normal male with normal female produced 58 offspring, with an average birthweight of 81.5 gm. From 34 matings of lead male with normal female 65 young were produced with an average birthweight of 69.3 gm. Nine offspring of lead males died in the first week against 2 offspring of normal males dying in that time. Eight young of lead females were stillborn against 3 stillborn from normal females bred to normal males. From the entire series of matings the following conclusions seem to be justified: (1) In chronic lead poisoning in guinea-pigs there is a definite blastophthoric effect which can best be demonstrated upon the male germ plasm. This effect manifests itself in some instances by sterility without loss of sexual activity, by a reduction of 20 per cent. in the average birthweight, by an increased number of deaths in the first week of life and by a retardation in development such that these pigs remain permanently underweight. (2) From the apparent recovery of the germ plasm some time after stopping the administration of lead it seems that the deleterious effect must be suffered especially by that portion of the germ plasm which is undergoing maturation and not by that which is stored in the primary germinal epithelium. However, final judgment upon this point must be withheld.

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## PATHOLOGY AND BACTERIOLOGY

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UNDER THE CHARGE OF

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**The Effect of Antibody Production of the Removal of Various Organs.**  
—HEKTOEN and CURTIS (*Jour. of Infect. Dis.*, 1915, xvii, 409) carried on a rather remarkable series of experiments to determine the part played by certain organs in the production of antibodies. The experiments were performed on dogs immunized against rat blood, and the agglutinins and opsonins were determined. The control animals showed maximum antibody production on about the twelfth day followed by a gradual defervescence to the normal level on about the fortieth day.